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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/874,355	06/06/2001	Tomonari Sendai	Q64810	2938

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EXAMINER

SHAW, SHAWNA JEANNINE

ART UNIT PAPER NUMBER

3737

DATE MAILED: 08/26/2004

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/874,355

Applicant(s)

SENDAI, TOMONARI

Examiner

Shawna J. Shaw

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.
2. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Claim Objections

3. Claims 1, 9, 14, 18 and 32 are objected to because of the following informalities: In claims 1 line 10, 9 line 13, 18 line 13 and 32 line 17, it appears that –at least one of— should be inserted between “the” and “color.” In claim 14, the step “computing a predetermined coefficient” is confusing. In claim 32 line 10, it appears that “tissue-state forming means” should be –tissue-state image forming means--. Appropriate correction is required.

Claim Interpretation

For examination purposes, the examiner interprets “tissue-state” images as visually portraying the probability of tissue being normal or diseased, and “tissue-form” images as visually portraying tissue structure (e.g., polyp size, lesion diameter, etc.).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 8-11, 17-19, 28-30, 32-34 and 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. in view of Kaneko et al. '994 or Imaizumi et al. '911.

Regarding claims 1, 2, 8, 17-19 and 28-30, Wang et al. discloses a fluorescent light image display method and apparatus including: means for obtaining a computed, or ratioed, fluorescent light image; means for assigning false color data thereto to form a tissue-state image [0075]; and means for assigning intensity thereto to generate a tissue-form image which is overlaid (inherently matching the number of pixels) to form an overall composite image [0076, 0115]. See also figures 9 and 10 and [0105] (regarding fluorescence images conveying histological information).

Regarding claims 9-11, 32-34 and 43-45, Wang et al. teaches a fluorescent light display method and apparatus including: means for obtaining a computed, or ratioed, fluorescent light image [0059] and a reflected light image [0060]; and forming a composite, or multivariate, image [0115] of corresponding tissue-state and tissue-form images, respectively [0105, 0117], by assigning at least one of color (frequency) and intensity data thereto [0115, 0128-29]. See also figures 4 and 14A.

Wang et al. differs from the claimed invention only in that the step of adjusting the brightness of the display based on the obtained image information is not specifically addressed. Kaneko et al. discloses observing changes in levels of *brightness* in the fluorescent image (col. 16 lines 25-28) and Imaizumi et al. alternatively states that the

presence of a lesion in a fluorescence observation system is indicated by the level (or degree) of *brightness* of an image (col. 33 lines 37-40). It would have been obvious at the time the invention was made to a person of ordinary skill in the art to additionally characterize the presence of a lesion in the composite image based on the brightness level as demonstrated by Kaneko et al. or Imaizumi et al. in the invention as taught by Wang et al. to enable enhanced visual discrimination between normal and cancerous tissue.

5. Claims 3-6, 12-15, 20-26 and 35-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. in view of Kaneko et al.

Regarding claims 3-6, 12-15, 20-23, 25, 26, 35-38, 40 and 41, although Wang et al. discloses assigning display gradation to indicate normal tissue or dysplasia [0075, 0129], Wang et al. does not specifically address assigning display gradation based on a statistical quantity. In the same field of endeavor, Kaneko et al. teaches assigning display gradation based on the maximum value and frequency (histogram) of the brightness levels of the image signals (col. 17 lines 3-20) to indicate normal tissue or dysplasia. Kaneko et al. further discloses using color discrimination scales and LUTs (inherently composed of a plurality of multiplication factors, or coefficients). See col. 16 lines 21-29. Further regarding claims 24 and 39, it is inherent that the computation circuit (141) of Kaneko processes data converted from the CCD in the form of 8 bits or less. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to assign the display gradation of Wang et al. based on statistical quantities, or histograms, of the image signals and adjust for brightness levels as

demonstrated by Kaneko et al. to eliminate artifacts and provide enhanced visual discrimination between normal and diseased tissues.

6. Claims 7, 16, 27 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. in view of Kaneko et al. and further in view of Zeng et al.

Regarding claims 7, 16, 27 and 42, Wang et al. and Kaneko et al. differ from the claimed invention in that the color data being a chromaticity is not discussed expressly. In the same field of endeavor, Zeng et al. demonstrates that assignment of colors based on a chromaticity system is well known (col. 9 lines 1-28, fig. 5). It would have been obvious at the time the invention was made to a person ordinary skill in the art to use a chromaticity system as demonstrated by Zeng et al. for assignment of colors in the invention of Wang et al. in view of Kaneko et al. as is well established in the art.

7. Claims 31 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. in view of Kaneko et al. and further in view of Hayashi et al.


Regarding claims 31 and 46, Wang et al. and Kaneko et al. differ from the claimed invention in that a GaN type laser is not specifically addressed for providing UV excitation. In the same field of endeavor, Hayashi et al. discloses that the use of a GaN semiconductor laser for providing excitation between 380-440 nm is inexpensive, has a long lifetime, and high efficiency output (col. 3 lines 26-33 and col. 12 lines 39-45). It would have therefore been obvious at the time the invention was made to a person of ordinary skill in the art to use a GaN laser as taught by Hayashi et al. to provide UV excitation in the invention as taught by Kaneko et al. for the above described reasons.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawna J. Shaw whose telephone number is (703) 308-2985. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's interim supervisor, Angela Sykes can be reached on (703) 308-5181. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Shawna J. Shaw
Primary Examiner
Art Unit: 3737
08/03/2004